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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,834	02/22/2002	Laxmi P. Parida	YOR920010446US2	3116

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EXAMINER	
ZHOU, SHUBO	

ART UNIT	PAPER NUMBER
1631	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/081,834	PARIDA, LAXMI P.	
	Examiner	Art Unit	
	SHUBO (Joe) ZHOU	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2 and 4-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2 and 4-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendment and request for reconsideration filed 5/19/09 are acknowledged and the amendment has been entered.

Claims 2 and 4-17 are presently pending and under consideration.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 2 and 4-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

This rejection is reiterated from the previous Office action.

The claims are drawn to a method or an article for performing the method, for pattern discovery on an input sequence comprising a plurality of elements, such as in claim 4, the method comprising:

> determining a plurality of first motifs from the input sequence, each first motif comprising at least one element from the input sequence;
>
> concatenating each of the plurality of first motifs with another of the plurality of first motifs to create a plurality of concatenated motifs;
>
> removing one or more selected motifs, wherein said one or more selected motifs are any of the concatenated motifs and the first motifs, wherein the step of removing comprises removing suffix motifs and wherein each motif in the concatenated motifs and the first motifs has an associated location list, and wherein the step of removing suffix motifs comprises the steps of:
>
> offsetting each location list for each of the motifs in the concatenated motifs and the first motifs to zero;

checking each location list for each of the motifs in the concatenated motifs and the first motifs to determine location lists that are the same;

concatenating motifs that have the same location list to create at least one new motif; and

providing at least said at least one new motif as an output to a user, wherein said method is performed by a processor.

The following analyses follow the rationales suggested in the Office's guidance to examiners under the Memorandum "Guidance for Examining Process Claims in View of In re Bilski (signed January 7, 2009, available online at www.uspto.gov/web/patents/memorandum.htm) and the "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (OG Notices: 22 November 2005, also available from the US PTO website at http://www.uspto.gov/web/offices/com/sol/og/2005/week47/og200547.htm), which is incorporated in the MPEP 2106.IV.C.2.

Paragraph three of the Memorandum states:

> *"[A] method claim must meet a specialized, limited meaning to qualify as a patent-eligible process claim. As clarified in Bilski, the test for a method is whether the claimed method is (1) tied to a particular machine or apparatus, or (2) transforms a particular article to a different state or thing.*

In the instant case, the method is not tied to a particular apparatus or machine. Note that while the claims require the method be performed by a processor, the processor does not have to be a particular apparatus or machine. Therefore, at least one embodiment of the claimed invention is not tied to a particular apparatus or machine.

Furthermore, there is no physical transformation because a process of sequence motif manipulation does not transform an article or physical subject to a different state or

thing. Therefore, at least one embodiment of the claimed method is not a statutory process.

Additionally, the Guidelines, which is incorporated into the MPEP 2106.IV.C.2, states:

> *To satisfy section 101 requirements, the claim must be for a practical application of the § 101 judicial exception, which can be identified in various ways (Guidelines, p. 19):*
>
> *- The claimed invention "transforms" an article or physical object to a different state or thing.*
>
> *- The claimed invention otherwise produces a useful, concrete and tangible result.*

It appears that the method claims produce a useful, concrete and tangible result.

Applicant's arguments filed 5/19/09 have been considered but they are not persuasive. Applicants "maintain that, while there are a variety of embodiments of a processor, the term 'processor' refers to a particular apparatus or machine" without providing specific arguments.

The rejection may be overcome by amendment of the claims to recite a suitably programmed computer or processor, which would be a particular machine/apparatus if there's adequate support therefor in the original disclosure.

Claim Rejections - 35 USC § 112, First Paragraph

The rejection of claims 2 and 4-17 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, set forth in the previous Office action, is withdrawn in view of applicant's amendment filed 5/19/09.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2 and 4-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parida et al. (IDS document: Pattern Discovery on Character Sets and Real-valued Data: Linear Bound on Irredundant Motifs and an Efficient Polynomial Time Algorithm, presentation on The Eleventh ACM-SIAM Symposium on Discrete Algorithms (SODA), held on January 9-11, 2000. See "SODA 2000 program," printed from the internet at <http://www.siam.org/meetings/da00/> on 7/7/08.).

The claims are drawn to a method and system for pattern discovery in an input sequence comprising determining a plurality of first motifs, concatenating each with another of the first motifs, removing selected motifs from the concatenated motifs and first motifs, offsetting each location list to zero, checking each location list to determine location lists that are the same, augmenting motifs that have the same location lists to create new motifs, and providing the new motifs to a user.

Parida et al. disclose a method and system for pattern discovery. The method comprises determining a plurality of first motifs referred to as irredundant motifs, concatenating each with another of the first motifs and determining location list of the motifs. Parida et al. also disclose a time algorithm to detect motifs. The algorithm is based on first detecting motifs or substrings of motifs, and then two agreeing motifs are concatenated to obtain a larger motif. A the end of each iteration, the set of budding motifs are trimmed so that they so not grow exponentially. This trimming step is interpreted being the same as the removing step of the instant claims. See at least page 298, and the mathematical basis is presented on pages 299-301. The method also comprises that when two motifs are found to have the same location list, they "must straddle." See page 301. The algorithm to detect and concatenate motifs is presented on pages 303-304.

Parida et al. do not explicitly state that the generated new motifs are outputted.

However, given that the method disclosed by Parida et al. is a computer implemented method using algorithm, it would have been obvious to one of ordinary skill in the art at the time of the invention that the new motif generated by the algorithm is caused to be displayed or outputted to whoever uses the program, i.e. the user.

Applicant's arguments filed 5/19/09 have been fully considered but they are not persuasive. Applicant again argues that the cited paper does not disclose or suggest the concatenation steps recited in the independent claims, and the algorithm, and asserts that what is disclosed on pages 303-304 of Parida et al. are merely mathematical proofs not detection algorithm. This is not found persuasive because Parida et al. explicitly use a subtitle "Algorithm to detect the Irredundant Motifs," indicating it is "algorithm" and it is for detection.

Assuming arguendo that what is disclosed was proof for concatenating, one having ordinary skill in the art at the time of the invention would have been motivated by Parida's proofs to write an algorithm for realizing the concatenation as proved by Parida. There would have been a reasonable expectation of success because the court held regarding software that "writing code for such software is within the skill of the art, not requiring undue experimentation, once its functions have been disclosed." Fonar Corp., 107 F.3d at 1549, 41 USPQ2d at 1805. Note that this paragraph should not represent new ground because applicant's arguments have been responded to.

Conclusion

No claim is allowed.

THIS ACTION IS MADE FINAL.

Applicants are reminded of the extension of time policy as set forth in 37 C.F.R. §1.136 (a). A shortened statutory period for response to this final action is set to expire three months from the date of this action. In the event a first response is filed

within two months of the mailing date of this final action and the advisory action is not mailed until after the end of the three-month shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 C.F.R. §1.136 (a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than six months from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shubo (Joe) Zhou, whose telephone number is 571-272-0724. The examiner can normally be reached Monday-Friday from 8 A.M. to 4 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran, can be reached on 571-272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides

Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public. For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

/Shubo (Joe) Zhou/

SHUBO (JOE) ZHOU, PH.D.

PRIMARY EXAMINER

571-272-0724